Extron Electronics

INTERFACING, SWITCHING AND DISTRIBUTION

CrossPoint 1616HVA

CrossPoint Series Matrix Switchers

8 x 4, 8 x 8, 12 x 4,
12 x 8, 16 x 8, or 16 x 16
I/O sizes

Minimum 200 MHz (-3dB)
video bandwidth, fully loaded

QuickSwitch Front
Panel Controller (QS-FPC™)

RS-232/422 control

Extron's Simple
Instruction Set (SIS™)

Windows®-based control pro-
gram

Audio follow/audio breakaway

Audio gain/attenuation

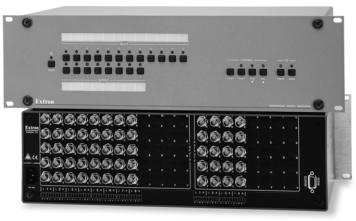
View I/O mode

Global memory presets

Front panel I/O
label windows

CrossPoint Models

Part Numbers

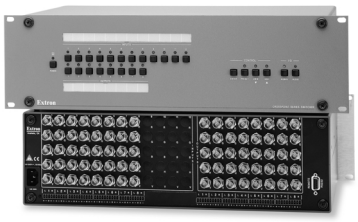


CrossPoint 84HVA

84HV/84HVA 8x4 Wideband Matrix Switchers

CrossPoint 84HV 60-219-02

CrossPoint 84HVA 60-219-03

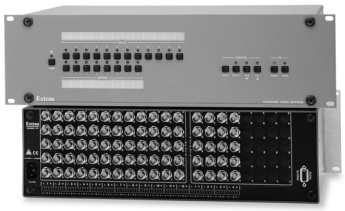


CrossPoint 88HVA

88HV/88HVA 8x8 Wideband Matrix Switchers

CrossPoint 88HV 60-325-02

CrossPoint 88HVA 60-325-03

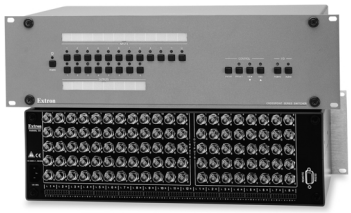


CrossPoint 124HVA

124HV/124HVA 12x4 Wideband Matrix Switchers

CrossPoint 124HV 60-326-02

CrossPoint 124HVA 60-326-03



CrossPoint 128HVA

128HV/128HVA 12x8 Wideband Matrix Switchers

CrossPoint 128HV 60-220-02

CrossPoint 128HVA 60-220-03

168HV/168HVA 16x8 Wideband Matrix Switchers

CrossPoint 168HV 60-330-02

CrossPoint 168HVA 60-330-03

CrossPoint 168HVA

1616HV/1616HVA 16x16 Wideband Matrix Switchers

CrossPoint 1616HV 60-242-03

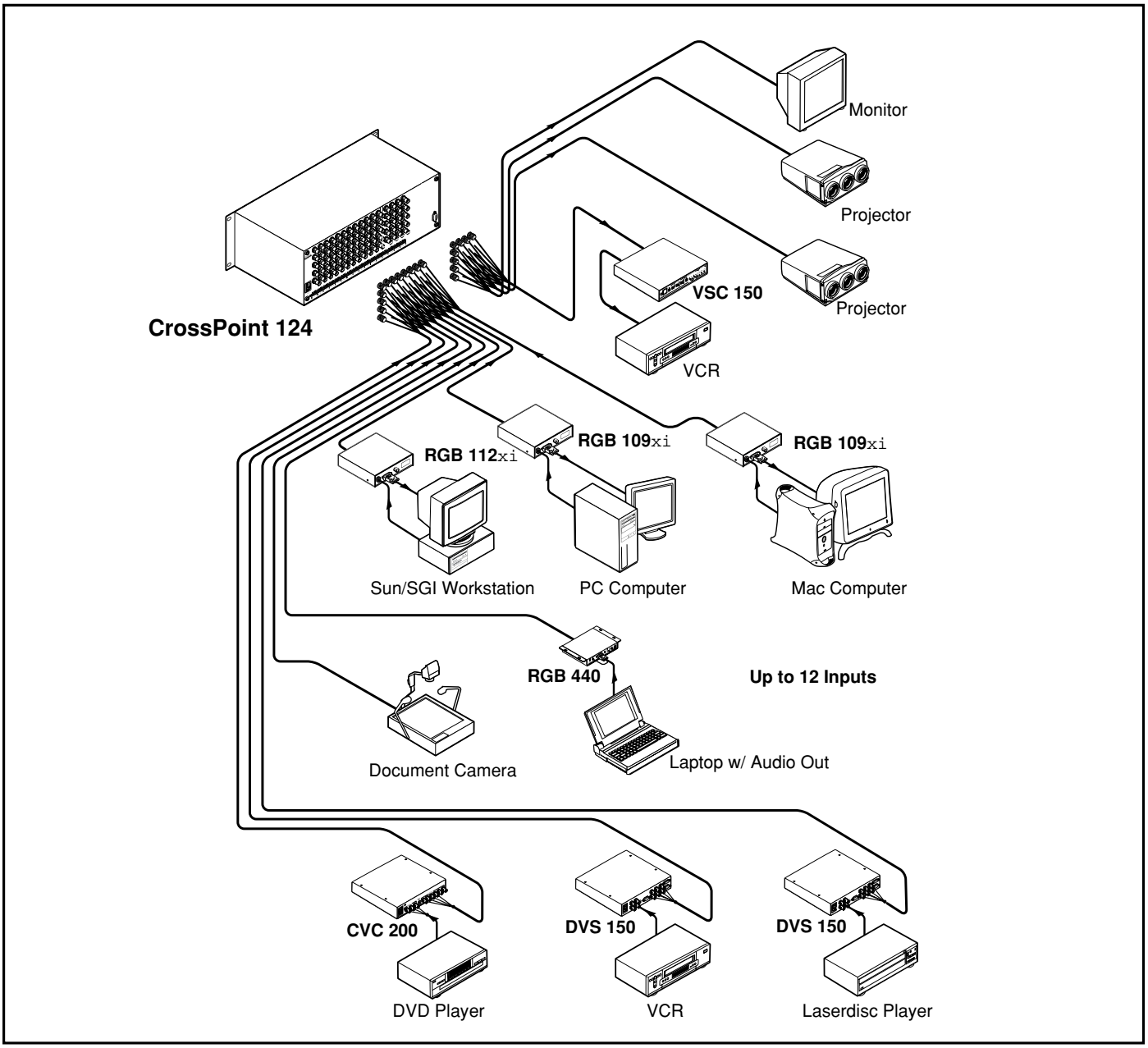
CrossPoint 1616HVA 60-242-04

APPLICATIONS

Extron's **CrossPoint Series Switchers** are analog RGBHV matrix switchers. There are six series available: CrossPoint 84 (eight input by four output), CrossPoint 88 (eight input by eight output), CrossPoint 124 (twelve input by four output), CrossPoint 128 (twelve input by eight output), CrossPoint 168 (sixteen input by eight output), and CrossPoint 1616 (sixteen input by sixteen output). Each series offers two models: "HV" models for switching RGBHV signals and "HVA" models for switching RGBHV signals and two channel stereo audio (balanced and unbalanced). All models also switch HDTV, component video, S-video, and composite video. Extron's CrossPoint Series Switchers allow users to set the level of audio gain or attenuation (-15dB to +9dB). Individual input audio levels may be adjusted so there are no noticeable volume differences between sources.

The CrossPoint Series provides the perfect single box solution to simple 200 MHz (-3dB) routing applications. Each input and output is individually isolated and buffered, and any input(s) can be switched to any one or all outputs with virtually no crosstalk or signal noise between channels.

Housed in a rack-mountable, 19" wide enclosure, the CrossPoint Series includes RS-232/422 capability. The unique advantage of the RS-232/422 control is the Simple Instruction Set™. These instructions are simple to use, easy to read, ASCII command codes. All CrossPoints come standard with the QuickSwitch Front Panel Controller (QS-FPC™), which allows for touch-of-a-button input and output selection directly from the front panel.



FEATURES

- **RGBHV –** The CrossPoint HV models switch separate horizontal and vertical sync to ensure proper sync polarity, providing a more stable image. All models also switch RGBS, RGsB, HDTV, component video, S-video, and composite video.
- **Minimum 200 MHz (-3dB) video bandwidth –** Ensures flawless switching and distribution of signals without signal degradation. The 200 MHz (-3dB) rating is a worst case specification; in other words the CrossPoint Matrix Switcher provides at least 200 MHz (-3dB) at full performance capacity — when one input signal drives all outputs. In most other applications, video bandwidth generally exceeds 200 MHz (-3dB), its minimum bandwidth.
- **Audio gain/attenuation (adjustable via RS-232/422 or front panel) –** Extron's CrossPoint Series Switchers allow users to set the level of audio gain or attenuation (-15dB to +9dB). Individual input audio levels may be adjusted so there are no noticeable volume differences between sources.
- **Buffered I/O –** Each input, as well as each output, of the CrossPoint Series is individually buffered to provide maximum performance and virtually no crosstalk.
- **QuickSwitch Front Panel Controller (QS-FPC™) –** The QuickSwitch FPC feature allows for touch-of-a-button input and output selection. Extron's QuickSwitch technology eliminates the learning curve usually associated with switching the inputs and outputs of a matrix switcher by using a tactile switch front panel button for every input and output.
- **Front panel I/O label windows –** I/O buttons may easily be labeled by any Brother® P-Touch™ labeler or by Extron's label software, which ships with every Extron matrix switcher. Each input and output can be labeled with names, alphanumeric characters, or even color bitmaps for easy and intuitive input and output selection.
- **View I/O mode**- Allows users to easily see which individual inputs and outputs are actively connected. Available from the front panel or RS-232/422 control.
- **Global presets –** Individual I/O configurations may be saved and recalled either from the QuickSwitch front panel or RS-232/422. This time-saving feature allows you to set up I/O configurations and keep them in memory for future use.
- **RS-232/422 control –** The CrossPoint Series Switchers offer RS-232/422 control, which allows the switcher to be controlled via a third party control system. Used for RS-232/422 control, Extron's SIS™ is easy to learn and easy to use. It allows users to generate characters directly from a keyboard. If you've configured one product with SIS, you've configured them all.
- **Simple Instruction Set –** Extron's SIS™ is a set of basic ASCII code commands that provide simple control through a third-party control system. Instead of programming in long, obscure strings of code, the SIS makes it easy to operate an Extron product using RS-232/422 control.
- **Control software –** For RS-232/422 remote control from a PC, Extron ships our Windows®-based control software with every matrix switcher. This icon-driven software uses a graphical, drag-and-drop interface to make I/O configuration and other customization functions simple and convenient. This software also offers an emulation mode for configuration of an offsite matrix switcher; the I/O configuration may then be saved for future downloading to the matrix switcher.
- **MCP 1000 and MKP 1000 control –** Utilizing the MCP 1000 master control panel and any combination of MCP 1000 slave control panels or MKP 1000 control keypads offers the flexibility to control a CrossPoint Matrix Switcher from a remote location or room. Both remote control options are easy to use and provide tactile buttons for quick selection. Each MCP 1000 panel may be used for one-button switching for a particular output and selecting global presets. Each MKP 1000 keypad may be used to select a different input or select a preset.
- **Audio follow –** Extron's CrossPoint Series "HVA" models feature the capability to switch an audio signal with its corresponding video signal. This feature also allows any audio signal to be selected with any video signal simultaneously to one or all outputs in any combination. Audio follow switching can be done via front panel control or RS-232/422 remote.
- **Audio breakaway –** The CrossPoint Series "HVA" models provide the capability to break away an audio signal from its corresponding video signal. Audio breakaway switching can be done via front panel control or RS-232/422 remote.
- **Microprocessor controlled –** All of the features and functions of Extron's CrossPoint Series Switchers are microprocessor controlled for maximum reliability and high performance.
- **Rack mountable –** Extron's CrossPoint Series Switchers are mountable in any conventional 19" wide rack.
- **Internal power supply –** The 100-240 volt, auto-switchable, internal power supply of the CrossPoint Series provides worldwide power compatibility.

SPECIFICATIONS

Video input

- Number/signal type ..... 8, 12 or 16 RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video, S-video, composite video
- Connectors ..... BNC female
- Nominal level ..... Analog — 0.7V p-p
- Minimum/maximum levels..... Analog — 0.5V to 2.0V p-p
- Impedance ..... 75 ohms
- Return loss ..... -30dB @ 5 MHz
- Maximum DC offset 1.5V

Video throughput

- Routing ..... 84 series: 8 x 4 matrix
  88 series: 8 x 8 matrix
  124 series: 12 x 4 matrix
  128 series: 12 x 8 matrix
  168 series: 16 x 8 matrix
  1616 series: 16 x 16 matrix
- Gain ..... Unity
- Bandwidth
  - CrossPoint 84/88/124/128.. Minimum: 200 MHz (3dB), fully loaded
    Maximum: 230 MHz (-3dB), fully loaded
    0-10 MHz: No more than +.1dB to -.1dB
    0-130 MHz: No more than +4dB to -0dB
  - CrossPoint 168/1616 .... Minimum: 200 MHz (-3dB), fully loaded
    Maximum: 210 MHz (-3dB), fully loaded
    0-10 MHz: No more than +.1dB to -.1dB
    0-130 MHz: No more than +.8dB to -.5dB
- Crosstalk ..... -50dB @ 5 MHz, -45dB @ 10 MHz
- Switching speed ..... 200 nS (max.)

Video output

- Number/signal type ..... 4, 8 or 16 RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video, S-video, composite video
- Connectors ..... BNC female
- Nominal level ..... 1V p-p
- Minimum/maximum level.. 2V p-p
- Impedance ..... 75 ohms
- Return loss ..... -30dB @ 5 MHz
- DC offset ..... ±5mV maximum

Sync

- Input type ..... RGBHV, RGBS, RGsB, RsGsBs
- Output type..... RGBHV, RGBS, RGsB, RsGsBs
- Input level ..... 0.5V to 5.0V p-p, (4.0V p-p nominal)
- Output level ..... AGC to TTL — 4V to 5V p-p
- Input impedance
  - 84/88/124/128 series..... All inputs ...510 ohms
  - 168/1616 series ..... Inputs 1 to 4 ..... 75 or 510 ohms, switchable
    Inputs 5 to 16 ..... 510 ohms
- Output impedance ..... 75 ohms
- Polarity ..... Positive or negative (follows input)

Audio input — audio models only

- Number/signal type ..... 8, 12 or 16 stereo, balanced/unbalanced
- Connectors ..... 3.5 mm captive screw terminals, 5 pole
- Impedance ..... 12.5 kohm, DC coupled, balanced
  25 kohm, DC coupled, unbalanced
- Maximum input level ..... +19.5dBu, (balanced or unbalanced) @ stated %THD+N
- Input gain adjustment .... -15dB to +9dB, adjustable per input by RS-232 or front panel
- CMRR ..... >75dB @ 20 Hz to 20 kHz

Audio throughput — audio models only

- Routing ..... 84 series: 8 x 4 stereo matrix
  88 series: 8 x 8 stereo matrix
  124 series: 12 x 4 stereo matrix
  128 series: 12 x 8 stereo matrix
  168 series: 16 x 8 stereo matrix
  1616 series: 16 x 16 stereo matrix
- Gain..... Unity
- Frequency response ..... ±0.05dB @ 20 Hz to 20 kHz
- THD + Noise ..... 0.03% @ 1 kHz at rated maximum output drive
- S/N ..... >90dB, output 21dBu, balanced
- Adjacent input crosstalk .. >80dB @ 1 kHz
- Stereo channel separation ..... >90dB @ 1 kHz

Audio output — audio models only

- Number/signal type ..... 4, 8 or 16 stereo, balanced/unbalanced
- Connectors ..... 3.5 mm captive screw terminals, 5 pole
- Impedance ..... 50 ohms unbalanced, 100 ohms balanced
- Gain ..... Unbalanced 0dB, balanced +6dB
- Gain error ..... ±0.1dB channel to channel
- Drive (Hi-Z) ..... > +21dBu, balanced or unbalanced at stated %THD+N
- Drive (600 ohm) ..... > +15dBm, balanced or unbalanced at stated %THD+N

Control/remote — switcher

- Serial control port ..... 1 RS-232 or RS-422, 9-pin female D connector
- Baud rate and protocol .. 9600, 8-bit, 1 stop bit, no parity
- Serial control pin configurations..... 2 = TX, 3 = RX, 5 = GND
- Program control..... Extron's control program for Windows® Extron's Simple Instruction Set – SIS™

General

- Power ..... 100VAC to 240VAC, 50/60 Hz, internal, auto-switchable
  - 84/88/124/128..... 30 watts
  - 168/1616 ..... 36 watts
- Temperature/humidity..... Storage -40° to +158°F (-40° to +70°C) / 10% to 90%, non-condensing
  Operating +32° to +122°F (0° to +50°C) / 10% to 90%, non-condensing
- Rack mount..... Yes, with included parts
  - 84/88/124/128 series .... 3U high
  - 168/1616 series ..... 6U high
- Enclosure type ..... Metal
- Enclosure dimensions
  - 84/88/124/128 series .... 5.25" H x 17.0" W x 9.5" D
    13.3 cm H x 43.2 cm W x 24.1 cm D
  - 168/1616 series ..... 10.5" H x 17.0" W x 10.1" D
    26.7 cm H x 43.2 cm W x 25.7 cm D
- Shipping weight..... 17 lbs (7.7 kg)
- DIM weight..... 25
- Vibration ..... NSTA 1A in carton (National Safe Transit Association)
- MTBF ..... 30,000 hours
- Approvals..... UL, CUL, CE

Matrix Switcher Cross-Reference

	Min. Bandwidth (MHz, -3dB), Fully Loaded	Maximum Inputs	Maximum Outputs	Modular Design & Field Expandable	HDTV Compatible	Composite Video (NTSC, PAL, SECAM)	S-video	Component Video (Y, R-Y, B-Y)	RGsB, RsGsBs, RGBS, & RGBHV	Balanced & Unbalanced Stereo Audio	Audio Mute	Adjustable Audio Gain/Attenuation	Audio Breakaway	Memory Presets	Label Windows For I/Os	510 or 75 Ohm Sync Input Termination	Plane Breakaway	Plane Grouping	Vertical Interval Switching	Triple-Action Switching	RGB Mute	Optional LCD Front Panel Controller	QuickSwitch Controller (QS-FPC)	Front Panel Security Lockout	Optional Redundant Power Supply	Simple Instruction Set	RS-232 / RS-422 Control	Number of Rack Units
MAV Video Series																											
MAV 62	80	6	2			●				●	❖	●	●	0	●				●				●			●	❖	1
MAV 84 RCA	80	8	4			●				⌘	❖	●	●	12	●				●				●			●	❖	2
MAV 128 RCA	80	12	8			●				⌘	❖	●	●	12	●				●				●			●	❖	2
MAV 168	80	16	8			●				●	❖	●	●	16	●				●				●			●	❖	2
MCV 168	80	16	8			●				n/a	n/a	n/a	n/a	16	●				●				●			●	❖	2
MSA 168	n/a	16	8		Audio Only					●	❖	●	n/a	16	●				n/a	n/a	n/a		●			●	❖	2
MAV 1616	80	16	16			●				●	❖	●	●	16	●				●				●			●	❖	2
MCV 1616	80	16	16			●				n/a	n/a	n/a	n/a	16	●				●				●			●	❖	2
MSA 1616	n/a	16	16		Audio Only					●	❖	●	n/a	16	●				n/a	n/a	n/a		●			●	❖	2
CrossPoint Series (Wideband)																											
CrossPoint 84HV & 84HVA	200	8	4		●	●	●	●	●	●	❖	●	●	12	●				n/a		❖		●			●	❖	3
CrossPoint 88HV & 88HVA	200	8	8		●	●	●	●	●	●	❖	●	●	12	●				n/a		❖		●			●	❖	3
CrossPoint 124HV & 124HVA	200	12	4		●	●	●	●	●	●	❖	●	●	12	●				n/a		❖		●			●	❖	3
CrossPoint 128HV & 128HVA	200	12	8		●	●	●	●	●	●	❖	●	●	12	●				n/a		❖		●			●	❖	3
CrossPoint 168HV & 168HVA	200	16	8		●	●	●	●	●	●	❖	●	●	16	●	●			n/a		❖		●			●	❖	6
CrossPoint 1616HV & 1616HVA	200	16	16		●	●	●	●	●	●	❖	●	●	16	●	●			n/a		❖		●			●	❖	6
CrossPoint Plus Series (Ultra-Wideband)																											
CrossPoint Plus 84HV & 84HVA	450	8	4		●	●	●	●	●	●	❖	●	●	16	●			●	n/a	●	❖		●	●		●	●	3
CrossPoint Plus 88HV & 88HVA	450	8	8		●	●	●	●	●	●	❖	●	●	16	●			●	n/a	●	❖		●	●		●	●	3
CrossPoint Plus 124HV & 124HVA	450	12	4		●	●	●	●	●	●	❖	●	●	16	●			●	n/a	●	❖		●	●		●	●	3
CrossPoint Plus 128HV & 128HVA	450	12	8		●	●	●	●	●	●	❖	●	●	16	●			●	n/a	●	❖		●	●		●	●	3
CrossPoint Plus 168HV & 168HVA	450	16	8		●	●	●	●	●	●	❖	●	●	16	●	●		●	n/a	●	❖		●	●		●	●	6
CrossPoint Plus 1616HV & 1616HVA	450	16	16		●	●	●	●	●	●	❖	●	●	16	●	●		●	n/a	●	❖		●	●		●	●	6
Modular Design & Field Expandable Series																											
Matrix 50	150	8,12	4, 8	●	●	●	●	●		●	❖	●	●	12					●				●			●	●	2
Matrix 3200 Wideband	230	32	32	●	●	●	●	●	●	n/a	n/a	n/a	●	132			●		n/a	●	●	●		●	●	●	●	5
Matrix 3200 Video	80	32	32	●	●	●	●	●		n/a	n/a	n/a	●	132			●		●	●	●	●		●	●	●	●	5
Matrix 6400 Wideband	230	64	64	●	●	●	●	●	●	n/a	n/a	n/a	●	132			●		n/a	●	●	●		●	●	●	●	7
Matrix 6400 Video	80	64	64	●	●	●	●	●		n/a	n/a	n/a	●	132			●		●	●	●	●		●	●	●	●	5
Matrix 6400 Audio	n/a	64	64	●	Audio Only					●	●	●	n/a	132			●		n/a	n/a	n/a	●		●	●	●	●	5
Matrix 12800 Wideband	230	128	128	●	●	●	●	●	●	n/a	n/a	n/a	●	132			●		●	●	●	●		●	●	●	●	10
Matrix 12800 Audio	n/a	128	128	●	Audio Only					●	●	●	n/a	132			●		n/a	n/a	n/a	●		●	●	●	●	10

CrossPoint Series Switchers are offered with and without audio. The "A" indicates audio, and the audio features apply. ❖ = RS-232 only ⌘ = Unbalanced audio only n/a = Not applicable

EXTRON ELECTRONICS/RGB SYSTEMS, INC.
1230 South Lewis Street, Anaheim, CA 92805
800.633.9876 714.491.1500 FAX 714.491.1517
U.S.A.

EXTRON ELECTRONICS, EUROPE
Beeldschermweg 6C, 3821 AH Amersfoort
+31.33.453.4040 FAX +31.33.453.4050
The Netherlands

EXTRON ELECTRONICS, ASIA
135 Joo Seng Rd. #04-01, PM Industrial Bldg.
+65.383.4400 FAX +65.383.4664
Singapore

EXTRON ELECTRONICS INFORMATION
EXTRONWEB™: www.extron.com
EXTRONFAX™: 714.491.0192
24-hour access—worldwide!

00-05
68-505-01
REV. A